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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND  
SALES hereby certify that annexed is a true copy of the Complete specification  
in connection with Innovation Patent No. 2002100309 for a patent by  
LADDALOC PTY LTD as filed on 19 April 2002.



WITNESS my hand this  
Thirteenth day of May 2003

*J. Billingsley*

JULIE BILLINGSLEY  
TEAM LEADER EXAMINATION  
SUPPORT AND SALES

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## **GENERAL SPECIFICATION FOR TEMPORARY FOLDABLE AND LOCKABLE CONSTRUCTION LADDER.**

**Concept:** This ladder is designed primarily to fill a niche in the construction industry.

When a stair void is created during the construction phase in a domestic dwelling or on a construction site, Three major issues are encountered.

They are,

- (a) Safe access, up and down the void area.
- (b) Preventing access to the upper floors by unauthorized persons including, children, clients and thieves etc.
- (c) Providing easy, safe and quick access to the upper floors by persons authorized to work on the site but would not carry ladders on their cars, such as building managers, inspectors, company management, suppliers and many tradesmen.

There is no device that can be used as a temporary ladder in a permanent void that fully conforms to OH&S. requirements. That also folds on up itself to prevent access by unauthorized persons whilst still secured at the top and bottom of the void, that is fully lockable with an integrated locking system.

This system complies with all the requirements of AS: 1657-1992 for ladders.

This product is designed primarily as a multiple use, high volume hire item.

This ladder can be fitted to domestic building sites to provide access from the ground floor up to the next floor. Also it can be used for any other levels that require access. It can also be used in many other industries such as chemical, commercial building and any buildings that require a safe and secure point of access such as hospitals, hotels, government buildings or any places that may have a security issue. For permanent application the locating pins would be replaced with one-way / vandal proof fixings. When the ladder is to be installed pattern

## THE SPECIFICATION

This is a collapsible lockable ladder for areas that require limited access to upper levels. In a system that is quick, convenient and easy to use.

The stringers are folded mild steel in a "c" section 38mm x 52mm x 2mm or 38 x 50mm x 3mm.

The rungs are folded mild steel in a "c" section 45mm x 30mm x 2mm. The external width of the rungs is marginally smaller than the inside width of the stringer "c" section.

The rungs are attached to the inside of the stringer via an 10mm metal pin; allowing the rungs to pivot at both the stringer points.

This allows the rungs to fold up inside the two opposing stringers by lifting the "free" stringer up and across to the fixed stringer.

Under one of the rungs a locking pin is attached to the fixed stringer, parallel to and inside the "c" section of the rung.

When the free stringer is moved over to the fixed stringer the locking pin penetrates the lower rung as it pivots up, then it penetrates the free stringer.

The two flanges of the "c" section stringers butt together encasing the rungs. Rendering the ladder unusable.

The pin on the keyed locking device is then pushed down into the hole drilled in the end of the locking pin.

On the free stringer near the keyed locking device is a pair of handles made from 10mm round mild steel these are to assist with the opening and closing of the ladder. They are also placed to provide a balanced lifting load and carrying point for the installation and removal of the ladder.

The stringer is long enough to project 1 meter past the top of the first floor. The rungs have been deleted from the height of the landing upward, this allows people to enter and exit through the ladder instead of having to step out and around it.

The pitch of the ladder is set to 1 in 4 to comply with regulations. The pitch is set to accommodate a 2.7-meter (9ft) lower ceiling but can also fit to any lower ceiling.

The lower bracket is a 50mm x 50mm x 5mm mild steel angle that attaches to the floor and is fitted on a pivot pin to allow for any pitch adjustment. It has an 10mm hole drilled in it to allow for fixing to the floor by screw, dynabolt or tap-tight.

The upper locating pin is an 12mm mild steel pin on the fixed stringer and a 8mm mild steel pin on the free stringer. The pin is set 75mm out from the stringer on a 25mm x 6mm mild steel flat bar. The pin is set plum to the pitch of the ladder.

The pin on the fixed stringer is set at 50mm so it can fit into a hole drilled into the floor and locate behind the void joist this pin stays permanently in position.

The pin on the free stringer works in the same way but is only 8mm so it can slide in and out of its locating hole as the ladder is opened and closed.

## THE CLAIM

1/ This product is unique as this problem exists in the industry and there are no devices used that perform in the manner I have described.

That is, to have a ladder that is permanently fixed on site during the construction phase. That can also collapse or fold onto itself to prevent access when not in use or when access is denied.

2/ The locking system works from under the tread so it is out of the way.

When the ladder is folded into the locked position the locking pin penetrates from the fixed stringer through both the tread and the opposing stringer and into the locking device rendering the ladder unusable.

3/ There is a locating pin near the top of the stringer for locating and securing the ladder to the upper floor of the void.

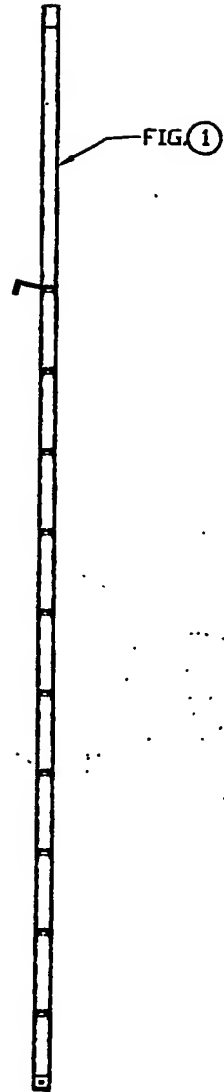
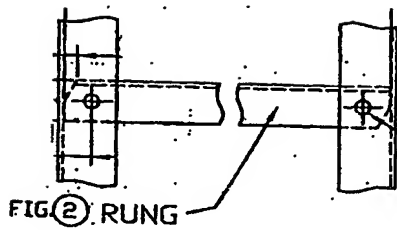
This is by means of a metal dowel. Rather than tying off the top with ropes as is the usual practice. The ladder has a locating pin welded to the stringer of the ladder in position for the top of the void, a hole is drilled in the flooring and the pin and ladder is pulled down onto the hole. When the foot of the ladder is secured to the lower floor via two metal tap-tights. The ladder can not be lifted up, there by locking the ladder in position.

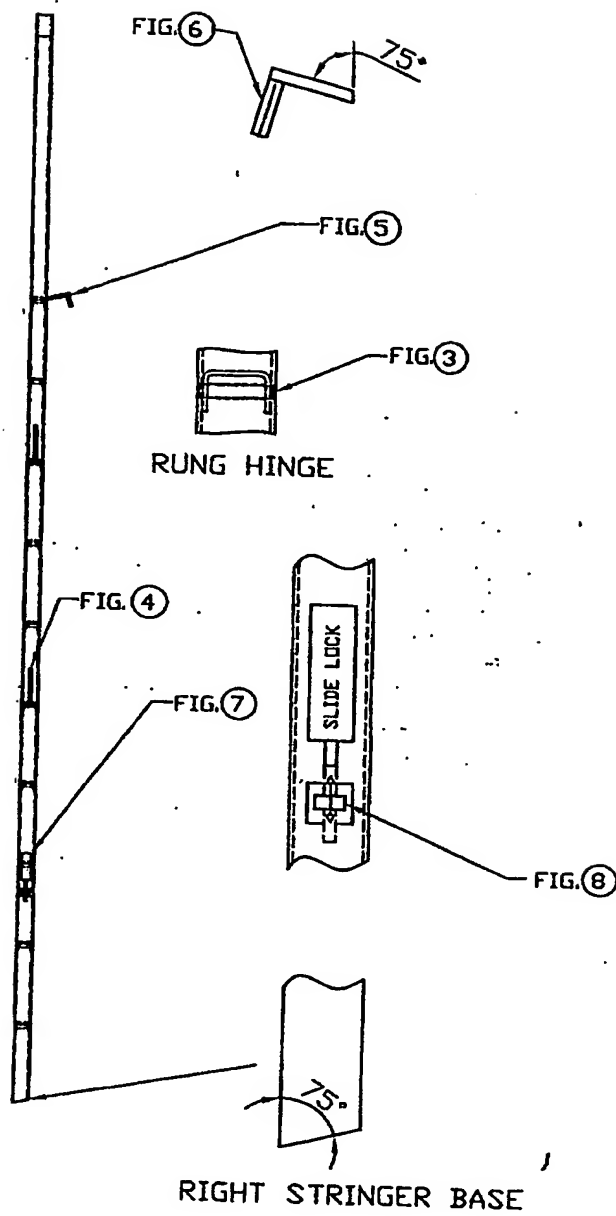
4/ Speed of operation, installation is a once off procedure that takes around 4 to 5 minutes, opening and closing the ladder takes about 4-5 seconds.

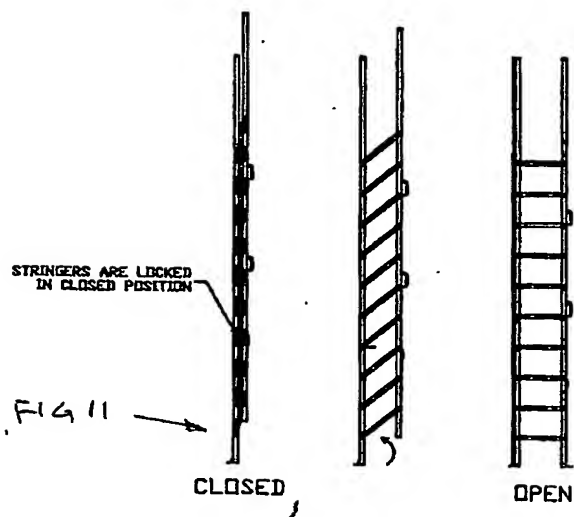
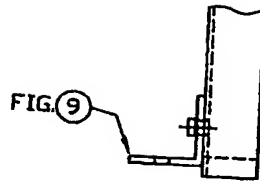
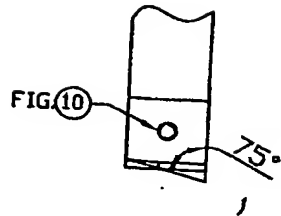
Once it is installed it can be opened and operational literally in seconds. Just turn the key and pull sideways. This takes about 4 to 5 seconds once opened there is nothing to do, the secondary pin locates itself and there is nothing that needs to be locked or secured in any way.

To lock the ladder after operation is just as simple. All that is required is simply to push the stringers back together then pop the lock pin down and the ladder is secure. This again takes about 5 seconds.

As the whole procedure is so quick and easy it is easier for all persons on site to use the ladder than scale frames, scaffolds and the like.







## Abstract

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